

What Is Claimed Is:

1. A direct-drive actuator assembly for actuating a tarp spool for a truck bed tarp system, the direct-drive actuator assembly comprising:

5 a transmission housing having an output shaft for directly driving the tarp spool, and further having transmission gears therein engaging the output shaft;

an electric motor operatively connected to the transmission gears for actuating the tarp spool; and

10 a brake operatively connected to the electric motor for automatically braking the motor when the electric motor is turned off.

2. The direct-drive actuator assembly of claim 1, further comprising:

15 a plurality of bolts connecting the brake to the motor; and

a cover secured to the transmission housing by the plurality of bolts over the electric motor and brake for enclosing the electric motor and brake.

20 3. The direct-drive actuator assembly of claim 2, wherein the electric motor and brake are disposed along a common axis.

25 4. The direct-drive actuator assembly of claim 3, wherein the brake is a spring-applied, power-released type brake.

5. The direct-drive actuator assembly of claim 4, wherein the electric motor and brake are electrically connected for single-switch operation such

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that the brake and electric motor may be energized and deenergized simultaneously.

5 6. The direct-drive actuator assembly of claim 1, further comprising first and second attachment bolts for securing the transmission housing to the tarp housing.

10 7. The direct-drive actuator assembly of claim 1, wherein the transmission housing includes a plurality of spur gears therein operatively connected between the input shaft and output shaft, and having approximately a 60:1 gear reduction.

 8. The direct-drive actuator assembly of claim 1, wherein the electric motor comprises a DC motor.

15 9. An electric tarp system for covering a truck bed, the system comprising:

 a tarp housing adapted for attachment to the truck;

20 a tarp spool positioned within the tarp housing;

 a transmission housing mounted to the tarp housing, and having an output shaft for directly driving the tarp spool, and further having transmission gears therein engaging the output shaft;

25 an electric motor operatively connected to the transmission gears for actuating the tarp spool; and

 a brake operatively connected to the electric motor for automatically braking the motor when the electric motor is turned off.

10. The direct-drive actuator assembly of claim 9, further comprising:

a plurality of bolts connecting the brake to the motor; and

5 a cover secured to the transmission housing by the plurality of bolts over the electric motor and brake for enclosing the electric motor and brake.

10 11. The direct-drive actuator assembly of claim 10, wherein the electric motor and brake are disposed along a common axis.

12. The direct-drive actuator assembly of claim 11, wherein the brake is a spring-applied, power-released type brake.

15 13. The direct-drive actuator assembly of claim 12, wherein the electric motor and brake are electrically connected for single-switch operation such that the brake and electric motor may be energized and deenergized simultaneously.

20 14. The direct-drive actuator assembly of claim 9, further comprising first and second attachment bolts for securing the transmission housing to the tarp housing.

25 15. The direct-drive actuator assembly of claim 9, wherein the transmission housing includes a plurality of spur gears therein operatively connected between the input shaft and output shaft, and having approximately a 60:1 gear reduction.

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16. The direct-drive actuator assembly of claim 9, wherein the electric motor comprises a DC motor.

5 17. A direct-drive actuator assembly for actuating a tarp spool for a truck bed tarp system, the direct-drive actuator assembly comprising:

a transmission housing having an output shaft for directly driving the tarp spool, and a plurality of transmission gears;

10 an electric motor operatively connected to the transmission gears for actuating the tarp spool;

a brake operatively connected in a stacked relationship with the electric motor for automatically braking the motor when the electric motor is turned off;
15 and

a cover secured to the transmission housing for enclosing the electric motor and brake.

18. The direct-drive actuator assembly of claim 17, wherein the electric motor and brake are
20 disposed along a common axis.

19. The direct-drive actuator assembly of claim 18, wherein the brake is a spring-applied, power-released type brake.

20. The direct-drive actuator assembly of claim 19, wherein the electric motor and brake are
25 electrically connected for single-switch operation such that the brake and electric motor may be energized and deenergized simultaneously.

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